

Work Order ID **77015**

Thursday, November 24, 2011 3:21:43 PM

77015

Page 1

Item ID: D3488-042

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Blade Fitting Assembly, RH

Start Date: 11/24/2011 Start Qty: 12.00

12

Cust Item ID:

Required Date: 12/5/2011 Req'd Qty: 12.00

12

Customer:

Reference:

Approvals:

Process Plan: *P*Date: *11/24*

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D3488

Rev B

100

0.00

100

Doosan

DOOSAN LATHE

Memo

0.00

Doosan Lathe

1-Turn as per Dwg DSK 101 & Folio FA6272-Deburr

*SA 11/12/16**12*

110

0.00

110

QC

QC2- Inspect parts off machine FAI/FAIB

Memo

0.00

Quality Control

*SA 11/12/16**12**PK →*

120

0.00

120

HAAS I

HAAS CNC VERTICAL MACHINING #1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine as per Folio FA627 & Dwg D34882-Deburr

*F.K. 11/12/16**12*

W/O: 77015 77015		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3488-042 PAR #: 12-1141 Fault Category: Machining Error NCR: Yes No DQA: Yes Date: 12/1/25
 Resolution: Use as is Disposition: Use as is QA: N/C Closed Date: 12/1/25

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/12/20	#100	Qty x2 Blade cuttings have $\pm 1.00"$ from prod. end. R.C. Process.	CP 11.12.20 051042	Chatter mark on inside buffed out. Not high stress area Acceptable	SL 11/12/7	SL 11/12/20	CP 11.12.20 051042	S 11/12/07

NOTE: Date & initial all entries

Work Order ID 77015***77015***

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Thursday, November 24, 2011 3:21:43 PM

Item ID: D3488-042 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Blade Fitting Assembly, RH
Start Date: 11/24/2011 Start Qty: 12.00 ***12*** Cust Item ID:
Required Date: 12/5/2011 Req'd Qty: 12.00 ***12*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00	1 FK -	11/12/10		12			
			sf	11/12/17					
140 *140* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00	and	11/12/20		12			
150 *150* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.00				(12)	EF/	11-12-21	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Thursday, November 24, 2011 3:21:43 PM

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 Item Name: Blade Fitting Assembly, RH
 Start Date: 11/24/2011 Start Qty: 12.00 ***12*** Cust Item ID:
 Required Date: 12/5/2011 Req'd Qty: 12.00 ***12*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
160									
Powdercoat									
Powder Coating									
	Memo								
	START TIME: 10:10	0.00							
	FINISH TIME: 10:40								
170	QC3- Inspect Part Finish	0.00							
170									
QC									
Quality Control	Memo								
180	HandFinishing	0.00							
180									
HandFinish									
Hand Finishing	Memo								
	Install Inserts as per Dwg D3488								

12x M-11/12/22

12x 4 11/21/23

12x 4 12/10/23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 77015***77015***

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Thursday, November 24, 2011 3:21:43 PM

Item ID: D3488-042 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Blade Fitting Assembly, RH
Start Date: 11/24/2011 Start Qty: 12.00 ***12*** Cust Item ID:
Required Date: 12/5/2011 Req'd Qty: 12.00 ***12*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 *190* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00		8210123		(#2)			
200 *200* Packaging Packaging	Identify as per dwg & Stock Location: <u>FP-2</u> Memo	0.00 0.00				121 counted	4	12/10/23	
210 *210* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00						12/11/23	

12-01-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Thursday, November 24, 2011 3:21:47 PM

Page 1

Work Order ID: 77015

77015

Parent Item: D3488-042

D3488-042

Parent Item Name: Blade Fitting Assembly, RH

Start Date: 11/24/2011

Required Date: 12/5/2011

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP Rev:A New Issue 06-02-28 JLM
IPP Rev:B As per Rev B 06-03-30 JLM
IPP Rev:C Now On Doosan Lathe JLM Verified BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

ALS7-1032-225 Purchased No

AI S7-1032-225

INSERT

ALS4-1032-225

Location

Loc Qty

Loc Code

ST282

1162

100896

135

111529

27

118520

1000

D6103-003 Manufactured No

D6103-003

Round Billet, Aluminum

Location

Loc Qty

Loc Code

MAT043

15

75066

15

**

1118386 (x49) 11/20/11

**

12

11/12/11

12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 77015
Description: Blade Fitting, RH / Turning Detail for D3488-1/-2		Part Number: D3488-2
Inspection Dwg: D3488 / DSK101 Rev: B / D		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
Ø2.150	+/-0.005	Ø2.147	/			
Ø2.780	+/-0.005	Ø2.776	/			
Ø3.125	+/-0.010	Ø3.122	/			
Ø3.346	+/-0.010	Ø3.348	/			
0.125 x 45°	+/-0.010 x +/-0.1°	.125x45°	/			
8.000	+0.030/-0.000	8.020	/			
9.250	+/-0.010	9.248	/			
0.188	+/-0.010	.188	/			
R0.032	+/-0.010	R.032	/			
R0.062	+/-0.010	R.062	/			
Ø0.297	+0.005/-0.001	Ø.302	/			
Ø0.430	+/-0.010	Ø.434	/			
0.100	+/-0.010	.105	/			
0.125	+/-0.010	.135	/			
2.620	+/-0.010	2.615	/			
3.500	+/-0.010	3.000	/			
1.005	+/-0.010	1.005	/			
Ø0.484	+0.005/-0.001	Ø.486	/			
1.180	+/-0.010	1.180	/			
3.150	+/-0.010	3.150	/			
3.070	+/-0.010	3.069	/			
R0.063	+/-0.010	R.063	/			

11/2/6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	77015
Description: Blade Fitting, RH / Turning Detail for D3488-1/-2		Part Number:	D3488-2
Inspection Dwg: D3488 / DSK101 Rev: B / D		Page 2 of 2	

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Milling Section						
Ø0.508	+0.006/-0.001	.5085	✓		FK-04	Vern.
0.750	+/-0.010	.752	✓		31006	Height gauge.
1.500	+/-0.010	1.500	✓		FK-04	Vern.
11.18	+/-0.030	11.175	✓		31006	Height gauge.
R0.062	+/-0.010	.062	✓		rad gauge.	
0.125	+/-0.010	.122	✓		FK-04	Vern.
0.590	+/-0.010	.590	✓		31006	Height gauge.
0.793	+/-0.010	.797	✓		"	"
1.351	+/-0.010	1.349	✓		"	"
1.317	+/-0.010	1.315	✓		FK-04	Vern.
1.802	+/-0.010	1.802	✓		FK-06	Depth gauge.

Measured by: F.K.	Audited by: onk	Prototype Approval:	N/A
Date: 11/12/16	Date: 11/12/20	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.03.31	New Issue	KJ/JLM	
B	08.09.19	Reformat P/O D3488-042	KJ/JLM	
C	08.12.02	Dimension 8.000 removed	KJ/JLM	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

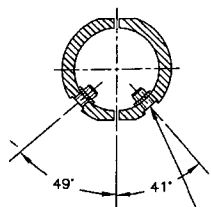
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

SHOP COPY

ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER NO. 77065

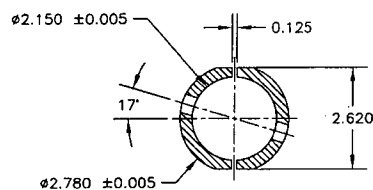
11-24



SECTION B-B

Ø0.297
C'BORE Ø0.430 x 0.100
INSTALL ALS4-1032-225 (OR AKS4-1032-225
OR ALS7-1032-225 OR AKS7-1032-225)
INSERTS AFTER FINISH
(4 PLACES)

4



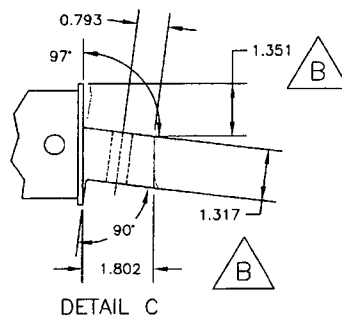
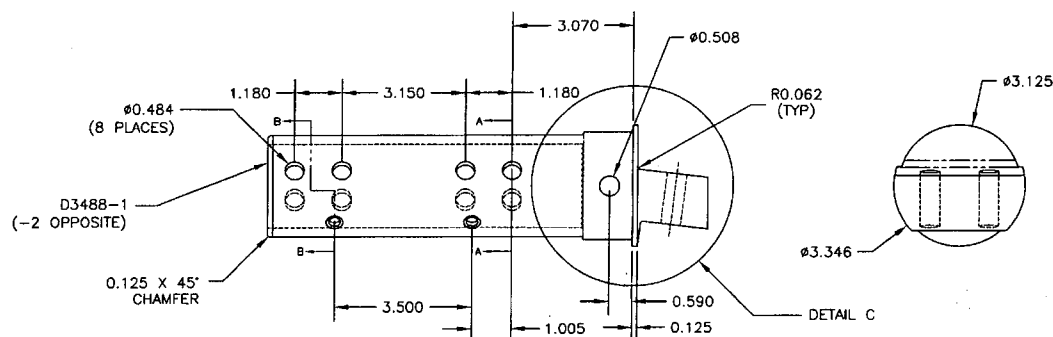
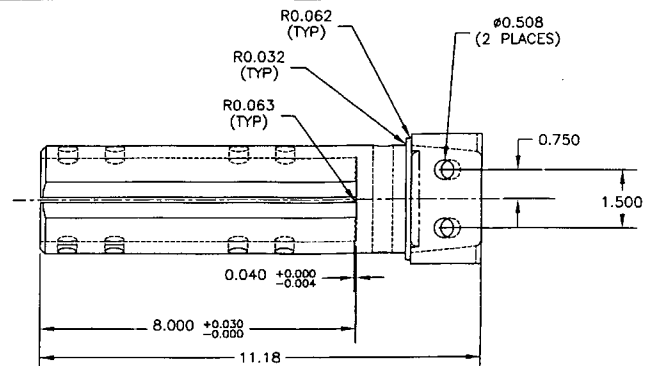
SECTION A-A

D3488-041/-042 BLADE FITTING ASSEMBLY PARTS LIST

QTY -041	QTY -042	PART NUMBER	DESCRIPTION
X	X	D3488-041	BLADE FITTING ASSEMBLY (LH)
		D3488-042	BLADE FITTING ASSEMBLY (RH)
1		D3488-1	BLADE FITTING (LH)
	1	D3488-2	BLADE FITTING (RH)
4	4	ALS4-1032-225 or AKS4-1032-225 or ALS7-1032-225 or AKS7-1032-225	INSERT

D3488-041/-042 BLADE FITTING

- MATERIAL: MAKE D3488-1/-2 FROM ALUMINUM 7075-T7351 ROUND BAR PER QQ-A-225/9 (REF. DART MATERIAL SPEC M7075T73R)
- FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
- BREAK UNMARKED SHARP EDGES 0.010 TO 0.020
- INSTALL INSERTS AFTER POWDER COAT
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED



DETAIL C

D3488-041 SHOWN (D3488-042 OPPOSITE)

RELEASED
06.03.15 PH
REV. 05
ECN #734

B	06.03.15	CHANGE THICKNESS
A	05.12.20	NEW ISSUE
DESIGN	PH	DRAWN BY PH
CHECKED	#	APPROVED #
DATE	06.03.15	TITLE
		BLADE FITTING
		DART DART AEROSPACE USA, INC. PORT HADLOCK, MA
		DRAWING NO. D3488
		REV. B
		SHEET 1 OF 1
		SCALE
		1:3

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries